

Claims

1. Method for producing thermal energy from small-grained oilseeds, preferably from rapeseed, characterized in that the combustion space (2) of a combustion chamber (1) is first preheated, and that unreduced seeds as well as combustion air are fed into this combustion space (2) in controlled amounts, after which preheating is discontinued and a pressure of at least 2 bar is maintained in the combustion space, whereby the seeds subsequently fed in burn explosively, and the resulting flame exits through a flame exit opening (9).

2. Method according to Claim 1, characterized in that combustion space (2) of combustion chamber (1) is preheated to a temperature between 500@ C and 1250@ C, preferably to a temperature of about 1000@ C.

3. Method according to Claim 1, characterized in that a pressure between 2 bar and 13 bar is maintained in combustion space (2) of combustion chamber (1).

4. Method according to Claim 1, characterized in that the seeds are fed into combustion chamber (1) individually and in succession.

5. Method according to Claim 1, characterized in that in at least one section of the combustion space, the fed-in oilseeds are forced to perform a spiral movement.

6. Method according to Claim 1, characterized in that the volume of the combustion space is variable.

7. Arrangement for implementing the method according to Claim 1, characterized by a combustion chamber (1) with a combustion space (2) in which a disconnectible preheating device (8) such as an oil burner is provided, and into which lead a feed line (3) for feeding in the oilseeds and at least one combustion air supply line (6), and which is provided with a flame exit opening (9), whereby devices for maintaining a pressure in the combustion space (2) are provided.

8. Arrangement according to Claim 7, characterized in that pressure control devices are provided in the feed line (3) for feeding in the oilseeds and/or in the area of the flame exit opening.

sub 7 9. Arrangement according to Claim 7 or 8, characterized in that a controllable proportioning device (5) is provided in the feed line (3) for feeding in the oilseeds.

10. Arrangement according to Claim 7, characterized in that the combustion space (2) consists of an interior tube (11) and an exterior casing (12) surrounding said interior tube (11) with clearance and communicating with said interior tube (11).

11. Arrangement according to Claim 10, characterized in that the feed line (3) leads into the interior tube (11) in which the disconnectible preheating device (8) is arranged, and that the flame exit opening (9) is provided in the exterior casing (12).

12. Arrangement according to Claim 10, characterized in that the interior wall of interior tube (11) is provided with a spiral recess (13) and that the feed line (3) preferably leads tangentially into interior tube (11).

13. Arrangement according to Claim 10, characterized in that a wall of the exterior casing (12), preferably an end wall extending across the axis of the interior tube, is adjustable.

14. Arrangement according to Claim 13, characterized in that a wall of the exterior casing (12) is designed as a plate (20) that can be moved, preferably by means of an electrical actuator.

sub 9 112 112 15. Arrangement according to one of Claims 7 to 14, characterized in that at least one combustion air supply line (6) leads into the interior tube (11), preferably tangentially.

16. Arrangement according to Claim 15, characterized in that another combustion air supply line (19), for the delivery of secondary air, leads into the space (16) surrounded by exterior casing (12).

sub 13 17. Arrangement according to one of Claims 7 to 16, characterized in that in at least one combustion air supply line (6), a controllable blower (7) is provided.

18. Arrangement according to Claim 9, characterized in that the flame exit opening (9) is designed as a Venturi nozzle.

19. Arrangement according to Claim 18, characterized in that the flame exit opening (9) is designed as a multi-stage Venturi nozzle, with an afterburner device provided between the different stages.

20. Arrangement according to Claim 8, characterized in that at least one throttle (18) is provided in the flame exit opening (9) which is preferably designed as a pipe end (17).

21. Arrangement according to Claim 8, characterized in that flame exit opening (9) is designed as a labyrinth.

22. Arrangement according to Claim 7, characterized in that the combustion chamber (1) with the combustion space (2), in particular the interior tube (11) and the exterior casing (12) surrounding same, are made of a fire resistant, preferably ceramic material.

22. Arrangement according to Claim 7, characterized in that the combustion space (2) is surrounded by a cooling jacket (10).